An Update on Hepatitis C in the United States
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The Twin Epidemics of Hepatitis C Virus (HCV) Transmission and Disease

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Key Takeaways

• 3.5 million persons are living with Hepatitis C in the United States; if untreated up to 40% will die of an CV –related condition

• The U.S. is experiencing increasing numbers of HCV related deaths and numbers of new HCV infections

• Barriers limit delivery of life-saving approaches including safe, curative therapies

• Proven strategies and tools can stop transmission, increase the number cured, and avert deaths from HCV

• Efforts are underway to lay the foundation for eliminating HCV
3.5M Persons Are Living with HCV Infection

- 2.7M among participants in national health surveys*
  - 1.0% prevalence (0.8%-1.2%)
  - 80% born 1945-1965

- 800,000 among populations excluded from national surveys
  - Incarcerated
  - Homeless
  - Indian reservations

* National Health and Nutrition Examination Survey (NHANES)
Wide-Ranging Health Effects of HCV Infection

Acute HCV infection → Chronic infection 55-85% → Mild fibrosis → Moderate to severe fibrosis → Cirrhosis 15-30% → Decompensated Cirrhosis

- Hepatocellular carcinoma (2-4% per year in cirrhosis)

Extrahepatic disease

(Including lymphomas, blood disorders, diabetes, kidney diseases)

Rein D, CID 2015
Modeling of Estimated Burden of HCV-Related Morbidity and Mortality If Diagnosis and Treatment Not Expanded

Of 2.7 M HCV infected persons in primary care
- 1.47 M will develop cirrhosis
- 350,000 will develop liver cancer
- 897,000 will die from HCV-related complications

Rein D, et al, Dig Liver Dis 2010
An Epidemic of HCV Disease, Including Deaths Primarily Among Older Adults

Hospitalizations in Adults with Principal Diagnosis of HCV, HBV, or HIV, Nationwide Inpatient Sample, 2004-2011

Deaths from HCV and All Other Nationally Notifiable Infectious Conditions*, U.S., 2003-2013

* Annual deaths listed on death certificates

Impact of HCV Testing, Care, and Curative Treatment

- **Test:**
  - Persons born 1945-1965 [$31-35,000/QALY]
  - Persons who inject drugs

- **Care and Treatment:**
  - ~90% cure with one to several pills/day for 8-12 wks

- **Benefits:**
  - 73% reduction in liver cancer
  - 93% reduction in liver-related mortality

- **Impact:**
  - Prevention of 321,000 HCV deaths
  - Decreased HCV transmission to others

van der Meer, JAMA 2012; Morgan, Ann Int Med 2012; Rein, CID 2015; Martin, CID 2013
Barriers Limit Access to HCV Testing, Care, and Treatment

- Poor provider knowledge
- Lack of clinical decision tools
- Limited public health data to monitor performance
- Few patient navigators per volume
- Denial of CMS reimbursement for testing (e.g., emergency departments, in-patients) and treatment
- Cost of HCV therapy

Holmberg et al., N Engl J Med 2013
Recent Actions

- CMS cautions states about restrictive HCV treatment policies, November 5, 2015
- Approval of ZEPATIER with list price $54,600, January 2016
- Report of lower prices, e.g., VA (~$17K)
- Legal actions (WA) removing restrictions based on disease severity

Medicaid Fibrosis Requirements for HCV Therapy, 2014 vs 2016

- 14 (39%) of 36 state Medicaid programs lowered their requirements
Key Strategies to Improve Access to HCV Testing, Care, and Curative Therapy

- Monitor care cascade
- Educate providers and the public
- Promote clinical decision tools
- Identify effective care models
- Target health disparities

Results of HCV Testing Program for Homeless and Public Housing Clients, Philadelphia, PA

- 11% anti-HCV+
- 92% tested for current HCV infection
- 63% HCV infected
- 89% HCV referred
- 75% attended appt.
An Epidemic of HCV Transmission, Especially Among Young People

Rising Number of New Acute HCV Cases Related to Injection Drug Use

These persons who inject drugs (PWIDs) are mainly:
- Young (aged 20-29 years)
- White
- Roughly equal gender distribution
- Non-urban (suburban, rural)
- Previous oral prescription opioid users

Suraprasad, CID 2014
Numerous States with Increasing Rates of New Hepatitis C Cases

30,500 new HCV infections in 2014

Source: National Notifiable Diseases Surveillance System (NNDSS)
More Infants Exposed to HCV Through Their Infected Mothers

Reports of Infants Born to HCV Infected Women:
Kentucky, United States, 2011-2014

- Kentucky: 1 of 308 births
- United States: 1 of 67 births

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Rate per 100,000 Births

- Kentucky: 1 of 308 births
- United States: 1 of 67 births

Graph showing the number of infants born to HCV-infected women in Kentucky and the United States from 2011 to 2014.
Strengthen HCV Prevention Where Transmission Risks are Highest

Counties at Risk for HIV and HCV Outbreaks in PWID, U.S.

Syringe Services Program (SSP) Coverage, U.S., June 2014

Van Handel, JAIDS, 2016; DesJarlais, MMWR 2015
Potential Impact of HCV Treatment as Part of Prevention Services for PWID

- 27% decrease – scale up NSP alone
- 41% decrease NSP + OST
- 70% decrease NSP + OST + Treatment of 60% (129) of HCV+ in first 2 years.

Median projections from sample of 1000 parameter sets.
CDC Priorities to Improve HCV Prevention Among Persons Who Inject Drugs

- Support state/local detection and investigation of HCV transmission
- Support local planning and response
- Assist interventions to prevent transmission
- Identify the best ways to treat/cure PWID
National Academies of Sciences, Engineering and Medicine, Eliminating the Public Health Problem of Hepatitis B and C in the United States, Phase I Report (April 11, 2016)

- 90% of HCV infections are curable
- 80% of new HCV infections are preventable
- The elimination of hepatitis C and hepatitis B as public health threats is achievable
- Substantial issues must be addressed to meet elimination goals
- In early 2017, NAS will outline specific strategies to reach elimination goals
CDC FY 2017 Priorities for Placing the Nation on the Path Toward Elimination

• Strengthen detection, investigation and response to new HCV infections

• Establish at least one regional training and technical assistance center

• Accelerate adoption of testing and treatment throughout the US health care system

• Develop at least one state/local model projects to eliminate HCV transmission and deaths
“At a population level, the effect of HCV medications will be determined by affordability and equitable access to HCV testing, care, and treatment. Only through these improvements can our focus be directed to what matters most: reducing the morbidity and mortality associated with HCV infection, stopping HCV transmission, and ultimately eliminating HCV as a public health threat in the United States and worldwide”.

Ward J and Mermin J, NEJM 2015